```
=> fil wpix
FILE 'WPIX' ENTERED AT 12:47:48 ON 21 NOV 2007
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FILE LAST UPDATED:                          19 NOV 2007   <20071119/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE:     200774      <200774/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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=> d his nofile

     (FILE 'HOME' ENTERED AT 12:16:54 ON 21 NOV 2007)

     FILE 'HCAPLUS' ENTERED AT 12:17:03 ON 21 NOV 2007
L1             1 SEA ABB=ON  PLU=ON  US2004241507/PN
                 D IALL

     FILE 'WPIX' ENTERED AT 12:17:40 ON 21 NOV 2007
L2             1 SEA ABB=ON  PLU=ON  US20040241507/PN
                 D IFULL

     FILE 'HCAPLUS' ENTERED AT 12:25:19 ON 21 NOV 2007
L3         20224 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN OR H2)
L4         26996 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L5            12 SEA ABB=ON  PLU=ON  L3 AND L4
L6               QUE ABB=ON  PLU=ON  SURFAC?
L7             6 SEA ABB=ON  PLU=ON  L5 AND L6
L8            12 SEA ABB=ON  PLU=ON  L5 OR L7

     FILE 'WPIX' ENTERED AT 12:37:49 ON 21 NOV 2007
L9          6645 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN)
L10         9014 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L11            8 SEA ABB=ON  PLU=ON  L9 AND L10
L12            4 SEA ABB=ON  PLU=ON  L11 AND L6
L13            8 SEA ABB=ON  PLU=ON  L11 OR L12
L14            6 SEA ABB=ON  PLU=ON  L13 AND (PY<=2003 OR PRY<=2003 OR
                 AY<=2003)
```

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     FILE 'HCAPLUS' ENTERED AT 12:39:44 ON 21 NOV 2007
L15            7 SEA ABB=ON  PLU=ON  L8 AND (PY<=2003 OR PRY<=2003 OR
                 AY<=2003)

     FILE 'COMPENDEX' ENTERED AT 12:40:26 ON 21 NOV 2007
L16         5554 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN)
L17         8877 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L18            5 SEA ABB=ON  PLU=ON  L16 AND L17
L19            3 SEA ABB=ON  PLU=ON  L18 AND L6
L20            1 SEA ABB=ON  PLU=ON  (L18 OR L19) AND (PY<=2003 OR
                 PRY<=2003 OR AY<=2003)

     FILE 'JAPIO' ENTERED AT 12:43:42 ON 21 NOV 2007
L21         5548 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN)
L22         5033 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L23            0 SEA ABB=ON  PLU=ON  L21 AND L22

     FILE 'INSPEC' ENTERED AT 12:44:02 ON 21 NOV 2007
L24         5269 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN)
L25        14182 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L26            7 SEA ABB=ON  PLU=ON  L24 AND L25
L27            4 SEA ABB=ON  PLU=ON  L26 AND L6
L28            4 SEA ABB=ON  PLU=ON  (L26 OR L27) AND PY<=2003

     FILE 'PASCAL' ENTERED AT 12:44:49 ON 21 NOV 2007
L29         4501 SEA ABB=ON  PLU=ON  (STORE# OR STORING OR STORAG? OR
                 RETRIEV? OR RESTOR?)(2A)(H OR HYDROGEN)
L30         6115 SEA ABB=ON  PLU=ON  (SI OR SILICON)(5A)(PORO? OR PORE OR
                 VOID# OR HOLE# OR SPONGELIKE OR SPONG# OR PERVIOUS)
L31            2 SEA ABB=ON  PLU=ON  L29 AND L30
                 D SCA

     FILE 'WPIX' ENTERED AT 12:45:37 ON 21 NOV 2007
                 SEL L14 PN,AP

     FILE 'HCAPLUS' ENTERED AT 12:45:49 ON 21 NOV 2007
L32            5 SEA ABB=ON  PLU=ON  (WO2004-FR50358/AP OR WO2004-US17365/

L33            5 SEA ABB=ON  PLU=ON  L15 NOT L32

     FILE 'HCAPLUS, COMPENDEX, INSPEC, PASCAL' ENTERED AT 12:46:37 ON 21
     NOV 2007
L34            9 DUP REM L33 L20 L28 L31 (3 DUPLICATES REMOVED)


=> d l14 ifull 1-6

L14  ANSWER 1 OF 6  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
ACCESSION NUMBER:     2005-145016 [16]   WPIX
DOC. NO. CPI:         C2005-047264 [16]
DOC. NO. NON-CPI:     N2005-123171 [16]
TITLE:                Hydrogen reservoir made of a nano-structured
                      silicon able to store hydrogen,
```

notably for fuel cells and hydrogen motors incorporating such reservoirs

DERWENT CLASS: E36; J06; L03; Q68; Q69; X16

INVENTOR: LYSENKO V; TURPIN C; TURPIN C J; TURPIN C J P P; TURPIN C J P

PATENT ASSIGNEE: (CNRS-C) CENT NAT RECH SCI; (CNRS-C) CNRS CENT NAT RECH SCI; (NAPO-N) INST NAT POLYTECHNIQUE TOULOUSE; (LYSE-I) LYSENKO V; (TURP-I) TURPIN C J P

COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
FR 2858313	A1	20050204	(200516)*	FR	18	[0]
WO 2005012163	A2	20050210	(200516)	FR		
EP 1648815	A2	20060426	(200628)	FR		
JP 2007500323	W	20070111	(200707)	JA	12	
US 20070059859	A1	20070315	(200722)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2858313	A1	**FR 2003-50375**	**20030728**
EP 1648815	A2	EP 2004-767919	20040727
WO 2005012163	A2	WO 2004-FR50358	20040727
EP 1648815	A2	WO 2004-FR50358	20040727
JP 2007500323	W	WO 2004-FR50358	20040727
JP 2007500323	W	JP 2006-521636	20040727
US 20070059859	A1	WO 2004-FR50358	20040727
US 20070059859	A1	US 2006-566041	20061013

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1648815	A2	Based on	WO 2005012163	A
JP 2007500323	W	Based on	WO 2005012163	A

PRIORITY APPLN. INFO: **FR 2003-50375 20030728**

INT. PATENT CLASSIF.:

IPC ORIGINAL: C01B0003-00 [I,A]; C01B0003-00 [I,C]; C01B0033-00 [I,C]; C01B0033-02 [I,A]; F17C0011-00 [I,A]; F17C0011-00 [I,C]; H01L0051-05 [I,C]; H01L0051-40 [I,A]; H01M0008-04 [I,A]; H01M0008-04 [I,C]

IPC RECLASSIF.: C01B0003-00 [I,A]; C01B0003-00 [I,C]; C01B0033-00 [I,C]; C01B0033-02 [I,A]

BASIC ABSTRACT:

FR 2858313 A1 UPAB: 20060121

NOVELTY - A hydrogen reservoir is made up of a substance able to **store hydrogen.** The substance is made up of nano-structured silicon.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for (a) fabrication of the hydrogen reservoir; and (b) a process for utilization of the hydrogen reservoir.

USE - Storage and release of hydrogen for applications such as fuel cells or fuel cell systems and hydrogen motors or hydrogen motor systems incorporating a hydrogen reservoir (all claimed), notably for portable devices such as telephones, computers and

small electronic devices, and land transport systems.

ADVANTAGE - The invention provides a hydrogen reservoir for which the volume and mass capacities are comparable or better than conventional **hydrogen storage** systems. The storage can be obtained in a simple manner and at atmospheric pressure, thus providing improved security. It may be fabricated in large quantities at low cost, and is compatible with production of fuel cells with different power ranges.

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred **Hydrogen Storage** Substance: The substance may be made up of a nanostructure of meso-**porous** and/or nano-**porous silicon**, or a **porous** and compacted nano-structured **silicon**, or a **porous**, crushed and compacted nano-structured **silicon.**

Preferred Utilization of the Hydrogen Reservoir: The hydrogen is released from the reservoir by causing rupture of the chemical bonds between the hydrogen and the silicon. Rupture is caused by the application of chemical, thermal, mechanical, radiation or electrical energy (claimed). The reservoir may be recharged by contacting the substance with an acid.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: E31-A02; E31-P06A; J06-B06A; L03-E04; L03-H05
EPI: X16-C15C3

L14 ANSWER 2 OF 6 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2005-011597 [01] WPIX
DOC. NO. CPI: C2005-003190 [01]
DOC. NO. NON-CPI: N2005-009323 [01]
TITLE: Elemental **hydrogen storage** and **retrieval** system for use in auxiliary power unit in vehicle comprises **hydrogen storage** component including silicon
DERWENT CLASS: E36; J06; L03; X16; X21; X22
INVENTOR: CHILCOTT D W; CHRISTENSON J C; SCHUBERT P J; SHUBERT P J
PATENT ASSIGNEE: (CHIL-I) CHILCOTT D W; (CHRI-I) CHRISTENSON J C; (DELP-N) DELPHI TECHNOLOGIES INC; (SCHU-I) SCHUBERT P J
COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20040241507	A1	20041202	(200501)*	EN	15[9]	
WO 2005035439	A2	20050421	(200527)	EN		
EP 1638886	A2	20060329	(200623)	EN		
JP 2007536426	W	20070913	(200762)	JA	18	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20040241507	A1 Provisional	**US 2003-474721P**	**20030530**
US 20040241507	A1 Provisional	**US 2003-477156P**	**20030609**
US 20040241507	A1	US 2004-824719	20040415
EP 1638886	A2	EP 2004-809430	20040601

WO 2005035439 A2	WO 2004-US17365 20040601
EP 1638886 A2	WO 2004-US17365 20040601
JP 2007526426 W	WO 2004-US17365 20040601
JP 2007526426 W	JP 2006-515096 20040601

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1638886	A2	Based on	WO 2005035439	A
JP 2007526426	W	Based on	WO 2005035439	A

PRIORITY APPLN. INFO: US 2004-824719 20040415
US 2003-474721P 20030530
US 2003-477156P 20030609

INT. PATENT CLASSIF.:

IPC ORIGINAL: B01J0020-02 [I,A]; B01J0020-02 [I,C]; B01J0020-30 [I,C]; B01J0020-34 [I,A]; B60K0015-03 [I,A]; B60K0015-03 [I,C]; B60K0008-00 [I,A]; B60K0008-00 [I,C]; C01B0003-00 [I,A]; C01B0003-00 [I,C]; C01B0033-00 [I,C]; C01B0033-02 [I,A]; F17C0011-00 [I,A]; F17C0011-00 [I,C]; H01M0008-04 [I,A]; H01M0008-04 [I,C]; H01M0008-10 [I,A]; H01M0008-10 [I,C]; H01M0008-12 [I,A]; H01M0008-12 [I,C]

IPC RECLASSIF.: B29C0047-30 [I,A]; B29C0047-30 [I,C]; H01M0006-20 [I,A]; H01M0006-20 [I,C]; H01M0008-06 [I,A]; H01M0008-06 [I,C]; H01M0008-12 [N,A]; H01M0008-12 [N,C]

BASIC ABSTRACT:

US 20040241507 A1 UPAB: 20060121

NOVELTY - An elemental **hydrogen storage** and **retrieval** system comprises a **hydrogen storage** component (50) including silicon (54).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a vehicle comprising an auxiliary power unit including a fuel cell system for combining hydrogen and oxygen to provide electrical power and a system for storing and **retrieving** element **hydrogen** for supplying hydrogen to the fuel cell system; and

(2) a method for extruding silicon rods comprising providing a reservoir for receiving molten silicon; providing apertures in the wall of the reservoir; and subjecting the molten silicon within the reservoir to pressure, gravity and/or centrifugal force to cause molten silicon to be extruded in rod shapes through the apertures.

USE - For use in an auxiliary power unit for generating electrical power in a vehicle (claimed).

ADVANTAGE - The adsorption and desorption of elemental hydrogen may be tailored to suit the system to particular applications. The elemental hydrogen remains safely adsorbed within the storage material in the event of catastrophic failure of the system.

DESCRIPTION OF DRAWINGS - The figure shows a schematic view of an elemental **hydrogen storage** and **retrieval** system of the invention.

Light source (14)
Current source (16)
Voltage source (18)
Control system (20)

Housing (44)
Inlet/outlet passage (46)
Hydrogen storage component (50)
Adsorbed hydrogen atoms (52)
Silicon (54)
Liberated hydrogen atoms (56)

TECHNOLOGY FOCUS:

MECHANICAL ENGINEERING - Preferred Components: A housing (44) encloses the **hydrogen storage** components. A control system (20) regulates the storing and **retrieval** of **hydrogen** from the **storage** component. The **hydrogen storage** component includes a **porous silicon surface** layer over at least a first portion of the **hydrogen storage** component. The percent void volume of the **surface** layer is 50 %. A second portion of the **hydrogen storage** component includes electronic integrated circuit elements. The **hydrogen storage** component includes silicon columns having an aspect ratio of length to diameter of at least 10. The silicon columns have been formed by extrusion of molten silicon through an orifice. The orifice has a diameter of 1 nm. It is formed in a shape of a triangle, rhombus, square or circle. Light, current and/or voltage release the **stored** **hydrogen** from the **storage** component. The light is provided by a light-emitting diode at a wavelength of 660 nm. The **hydrogen storage** component is formed from a silicon wafer. The silicon may be derived from molten silicon by crystallization or from silicon waste from the integrated circuit industry. The fuel cell system consists of solid oxide fuel cell system and proton exchange membrane system. The **hydrogen** **storage** components are distributed into various locations, e.g. floors, fenders, quarter panels, rocker panels, doors, columns, posts, trunk, and/or roof, within the vehicle.

INORGANIC CHEMISTRY - Preferred Materials: The **hydrogen storage** component includes **porous silicon.** The extrusion is carried out in an atmosphere of hydrogen, argon, helium, or neon. The silicon may be in a monocrystalline or polycrystalline form. The silicon has been treated by crushing, milling, treatment with hydrofluoric acid and methanol in the presence of electric current, treatment with potassium hydroxide, treatment with hydrazine, wet etching, dry etching, electrodeposition of a noble metal, e.g. palladium or platinum, conformal vapor deposition of silicon, or non-conformation vapor deposition of silicon.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: E11-N; E11-S; E31-A02A; E31-A02B; E31-A05; E31-D01; E31-P06A; J06-B06; L03-E04
EPI: X16-C01; X16-C15; X16-E01C1; X21-A01F; X21-B01A; X21-B04; X22-F01; X22-F03

L14 ANSWER 3 OF 6 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-435981 [41] WPIX
DOC. NO. NON-CPI: N2004-344781 [41]
TITLE: Polishing pad used for chemical-mechanical polishing of **silicon** wafer, has circular **holes** and concentric circular grooves, which are uniformly formed on polishing **surface**
DERWENT CLASS: P61; U11
INVENTOR: HIRAKI H; KATAO Y; YOKOMICHI Y

PATENT ASSIGNEE: (LODE-N) LODEL NITTA KK
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2004167605	A	20040617	(200441)*	JA	19[16]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2004167605	A	**JP 2002-332502**	**20021115**

PRIORITY APPLN. INFO: **JP 2002-332502 20021115**
INT. PATENT CLASSIF.:
IPC RECLASSIF.: B24B0037-00 [I,A]; B24B0037-00 [I,C]; B24B0053-00 [I,C]; B24B0053-02 [I,A]; H01L0021-02 [I,C]; H01L0021-304 [I,A]

BASIC ABSTRACT:

JP 2004167605 A UPAB: 20050530

NOVELTY - The polishing pad has several circular holes (H) which **store** the slurry consisting of grinding particles, and concentric circular grooves (S). The holes and grooves are uniformly distributed on the polishing **surface**

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for polishing apparatus.

USE - For polishing silicon wafer using polishing apparatus (claimed) such as chemical-mechanical polishing apparatus, in manufacture of semiconductor element.

ADVANTAGE - The polishing rate and flat **surface** uniformity are improved, by forming both holes and grooves on the polishing **surface.**

DESCRIPTION OF DRAWINGS - The figure shows a top view of polishing pad. (Drawing includes non-English language text).

polishing pad (1)
holes (H)
grooves (S)

FILE SEGMENT: GMPI; EPI
MANUAL CODE: EPI: U11-C06A1A

L14 ANSWER 4 OF 6 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-112950 [12] WPIX
DOC. NO. CPI: C2004-046528 [12]
DOC. NO. NON-CPI: N2004-089886 [12]
TITLE: Granular silicon manufacturing equipment for solar cells, has holes formed in conical portion of nozzle to eject silicon melt solution from melting pot protruded by side o emitting silicone melt solution to emit
DERWENT CLASS: E36; L03; U11; U12
INVENTOR: ARIMUNE H; HAYASHI K; KITAHARA N; SUZUKI T; TANABE H
PATENT ASSIGNEE: (KYOC-C) KYOCERA CORP
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2003335511 <--	A	20031125	(200412)*	JA	7	[11]
JP 3961342	B2	20070822	(200757)	JA	10	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2003335511	A	**JP 2002-145212**	**20020520**
JP 3961342	B2	**JP 2002-145212**	**20020520**

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
JP 3961342	B2	Previous Publ	JP 2003335511	A

PRIORITY APPLN. INFO: **JP 2002-145212** **20020520**
INT. PATENT CLASSIF.:
IPC ORIGINAL: C01B0033-00 [I,C]; C01B0033-021 [I,A]
IPC RECLASSIF.: C01B0033-00 [I,C]; C01B0033-02 [I,A]; H01L0031-04 [I,A]; H01L0031-04 [I,C]

BASIC ABSTRACT:

JP 2003335511 A UPAB: 20050528

NOVELTY - A nozzle (d) is formed with holes (e) in a conical portion to eject a silicon melt solution (c) form a melting pot (1) for manufacturing a granular silicon.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the granular silicon manufacturing method.

USE - For manufacturing granular silicon for production of solar cells.

ADVANTAGE - Enables ejection of jet of grain shaped **silicon** through the **holes** in the nozzle stably. The corrosion of the nozzle hole is prevented, by preventing the wetting of the ejection side of the nozzle with the melt solution. The processing cost of the silicone manufacturing apparatus is reduced.

DESCRIPTION OF DRAWINGS - The figure shows a schematic view of the granular silicon manufacturing equipment. (Drawing includes non-English language text).

melting pot (1)
silicon melt solution (2)
nozzle (d)
hole (e)
storage container (h)

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: E31-P06A; L03-E05B; L04-A01
EPI: U11-A01A; U12-A02A

L14 ANSWER 5 OF 6 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1997-422589 [39] WPIX
DOC. NO. CPI: C1999-024663 [08]
DOC. NO. NON-CPI: N1999-058865 [08]
TITLE: Fabrication of capacitors for dynamic random access memories (DRAM) - with a silicon deposition

process using silane to improve step coverage and di:silane for increased deposition rate.

DERWENT CLASS: L03; U11; U13
INVENTOR: AHN B; AHN B C; AHN S; AHN S J; KANG M; KANG M S; SHIN H; SHIN H B
PATENT ASSIGNEE: (SMSU-C) SAMSUNG ELECTRONICS CO LTD
COUNTRY COUNT: 4

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 09191092 <--	A	19970722	(199739)*	JA	12	
US 5854095 <--	A	19981229	(199908)B	EN	13[15]	
KR 97051991 <--	A	19970729	(199910)	KO		
KR 97052571 <--	A	19970729	(199910)	KO		
KR 97054166 <--	A	19970731	(199911)	KO		
KR 224707 <--	B1	19991015	(200108)	KO		
TW 393776 <--	A	20000611	(200108)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 09191092 A 19961219		JP 1996-354567	
KR 97051991 A		KR 1995-55683	19951223
KR 97052571 A		KR 1995-59278	19951227
KR 97054166 A		KR 1996-36138	19960828
KR 224707 B1		KR 1996-36138	19960828
TW 393776 A 19961220		TW 1996-115782	
US 5854095 A 19970102		US 1997-778049	

PRIORITY APPLN. INFO: **KR 1996-36138 19960828**
KR 1995-55683 19951223
KR 1995-59278 19951227

INT. PATENT CLASSIF.:
MAIN: H01L021-20; H01L021-30; H01L027-108; H01L027-12
IPC RECLASSIF.: H01L0021-02 [I,A]; H01L0021-02 [I,C]; H01L0021-02 [I,C]; H01L0021-205 [I,A]; H01L0021-285 [I,A]; H01L0021-70 [I,C]; H01L0021-70 [I,C]; H01L0021-768 [I,A]; H01L0021-822 [I,A]; H01L0021-8242 [I,A]; H01L0021-8242 [I,A]; H01L0027-04 [I,A]; H01L0027-04 [I,C]; H01L0027-108 [I,A]; H01L0027-108 [I,C]; H01L0027-12 [I,A]; H01L0027-12 [I,C]

BASIC ABSTRACT:
US 5854095 A UPAB: 20050703
A method for making an integrated memory device comprises; (a) Forming a memory cell access transistor comprising doped source and drain regions (107) on an integrated circuit substrate. (b) Forming an insulating layer (108,112) with a contact hole exposing

a portion of one of source / drain. (c) Forming a first amorphous polysilicon layer (114A) on the insulating layer using silane to fill the fill the contact hole (113). (d) Forming a second amorphous polysilicon (116A) on the first using disilane. (e) Patterning the two amorphous polysilicon layers to provide a storage electrode connected to the source / drain region through the contact hole. (f) Forming hemispherical grain polysilicon (118) over the storage electrode. (g) Forming a dielectric layer over the **storage** electrode. (h) Forming a conductive layer on the dielectric layer. The first amorphous polysilicon layer is 500 - 3000 Å thick and formed at 490 - 560 °C, the second is 1000 - 10,000 Å and formed at 480 - 560 °C

USE - DRAM capacitor fabrication.

ADVANTAGE - The use of improves step coverage allowing **silicon** to fill contact **holes** with less voids, and the use of disilane increases deposition rate and reduces its variability, and reduces local crystallisation of the silicon increasing its uniformity, all resulting in improved capacitor electrodes.

DOCUMENTATION ABSTRACT:

US5854095

A method for making an integrated memory device comprises;

(a) forming a memory cell access transistor comprising doped source and drain regions (107) on an integrated circuit substrate;

(b) forming an insulating layer (108,112) with a contact hole exposing a portion of one of source / drain;

(c) forming a first amorphous polysilicon layer (114A) on the insulating layer using silane to fill the fill the contact hole (113);

(d) forming a second amorphous polysilicon (116A) on the first using disilane;

(e) patterning the two amorphous polysilicon layers to provide a storage electrode connected to the source / drain region through the contact hole;

(f) forming hemispherical grain polysilicon (118) over the storage electrode;

(g) forming a dielectric layer over the storage electrode; and

(h) forming a conductive layer on the dielectric layer. The first amorphous polysilicon layer is 500 - 3000 Å thick and formed at 490 - 560 °C, the second is 1000 - 10,000 Å and formed at 480 - 560 °C

USE

DRAM capacitor fabrication.

ADVANTAGE

The use of improves step coverage allowing **silicon** to fill contact **holes** with less voids, and the use of disilane increases deposition rate and reduces its variability, and reduces local crystallisation of the silicon increasing its uniformity, all resulting in improved capacitor electrodes.

FILE SEGMENT: CPI; EPI

L14 ANSWER 6 OF 6 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1987-309417 [44] WPIX
DOC. NO. CPI: C1987-131666 [21]
TITLE: Powder charged reactor - comprises hollow porous ceramic part in vessel, composed of sintered silicon or zirconium carbide(s) for **storage** of ammonia, **hydrogen**

DERWENT CLASS: G04; J06; Q78
INVENTOR: HIGO T; OSHITA T
PATENT ASSIGNEE: (EBAR-C) EBARA MFG CO LTD
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 62216633	A	19870924	(198744)*	JA	7[11]	
<--						
JP 05009129	B	19930204	(199308)	JA	7	
<--						

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 62216633 A		JP 1986-58348	19860318
JP 05009129 B		JP 1986-58348	19860318

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 05009129 B	Based on	JP 62216633 A

PRIORITY APPLN. INFO: **JP 1986-58348 19860318**
INT. PATENT CLASSIF.:
MAIN: B01J008-02
IPC RECLASSIF.: B01J0008-02 [I,A]; B01J0008-02 [I,C]; C01B0003-00 [I,A]; C01B0003-00 [I,C]; C04B0038-00 [I,A]; C04B0038-00 [I,C]; F28D0020-00 [I,A]; F28D0020-00 [I,C]

BASIC ABSTRACT:

JP 62216633 A UPAB: 20050426

Reactor comprises hollow porous ceramic members arranged in vessel and composed of sintered bodies mainly consisting of silicon carbide or zirconium carbide, and powder which is charged inside or outside ceramic memiers. Space where no powder is charges is in contact with the opening of the vessel.

ADVANTAGE - Heat regeneration and storage of ammonia or hydrogen can be effectively performed.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: G04-B01; J04-X; J06-B06

=> fil hcap
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FILE LAST UPDATED: 20 Nov 2007 (20071120/ED)

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FILE COVERS 1970 TO DATE.

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FILE COVERS 1898 TO DATE.

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FILE LAST UPDATED: 19 NOV 2007 <20071119/UP>
FILE COVERS 1977 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE IN THE BASIC INDEX (/BI) FIELD <<<

=> d l34 iall 1-9

L34 ANSWER 1 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 2006-0388026 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2006 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): The energetics of hydrogen adsorbed in

nanoporous carbon : A simulational study
Proceedings of the 21st International Conference on Amorphous and Nanocrystalline Semiconductors-Science and Technology (ICANS 21)

AUTHOR: LOUSTAU Emilye R. L.; ESTRADA Ruben; VALLADARES Ariel A.
MARTINS Rodrigo (ed.); CHU Virginia (ed.); FORTUNATO Elvira (ed.); CONDE Joao Pedro (ed.); FERREIRA Isabel (ed.)
CORPORATE SOURCE: Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico, Ciudad Universitaria, Apartado Postal 70-360, 04510 Mexico, D.F, Mexico
Materials Science Department, FCT-UNL, Campus da Caparica, Portugal; INESC Microsistemas e Nanotecnologias, Lisbon, Portugal; Department of Chemical and Biological Engineering, IST-UTL, Lisbon, Portugal

SOURCE: Journal of non-crystalline solids, (2006), 352(9-20), 1332-1335, 11 refs.
Conference: 21 International Conference on Amorphous and Nanocrystalline Semiconductors, Lisbon (Portugal), 4 Sep 2005
ISSN: 0022-3093 CODEN: JNCSBJ
DOCUMENT TYPE: Journal; Conference
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-14572, 354000142455191130

ABSTRACT: Porous carbon is considered a promising material to **store hydrogen.** It can be visualized as a defective relaxed sample and therefore some of the methods we have developed to deal with **porous silicon** are presently applied to this material. Porous atomic structures with 50% porosity that, due to the size of the supercells fall within the regime of nanoporous carbon, are generated using our procedure. Two pure nanoporous samples of densities 1.75 g/cm.sup.3 and 1.31 g/cm.sup.3 were hydrogenated, relaxed and their total energy obtained. The hydrogenated samples were first stripped of the hydrogen atoms and their total energy obtained. Then the original samples were stripped of the carbon atoms and the total energy calculated. From these values the average energy per hydrogen atom was then deduced. We compare our results to CH bond energies; conclusions are drawn.

CLASSIFICATION CODE: 001B80A07Z; Physics; Materials science
001D06D10; Applied sciences; Energy; Thermal use of fuels
230; Energy
CONTROLLED TERM: Atomic structure; Porosity; **Hydrogen storage**; Hydrogen additions; Total energy; Ab initio calculations; Density functional method; Adsorption; Radial distribution function; Carbon; Carbon nanotubes; Nanoporous materials

process); PUR (Purification or recovery); PREP (Preparation); PROC (Process); USES (Uses)
(**storage** and recovery; manufacture of **hydrogen storage** compns.)

INDEX TERM: 409-21-2, Silicon carbide (SiC), processes
7440-21-3, Silicon, processes 12033-89-5, Silicon nitride (Si3N4), processes 37299-94-8, Silicon boride
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(substrate; manufacture of **hydrogen storage** compns.)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Bradley; US 6834508 B1 2004 HCAPLUS
(2) Gamo; US 4946646 A 1990 HCAPLUS
(3) Jaramillo; J. Comb. Chem 2002, V4, P17 HCAPLUS
(4) Phillips; US 20040009118 A1 2004 HCAPLUS
(5) Sawa; US 6030724 A 2000 HCAPLUS

L34 ANSWER 3 OF 9 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2003:7508229 INSPEC
DOCUMENT NUMBER: A2003-04-8630K-004; B2003-02-8410-016
TITLE: Photoelectrochemical characterization of **porous Si**: possible application in photoelectrolysis and **hydrogen storage**
AUTHOR: Mathews, N.R.; Sebastian, P.J.; Mathew, X.; Lugo, J.E. (Energy Res. Center, Univ. Nacional Autonoma de Mexico, Morelos, Mexico)
SOURCE: New Materials for Electrochemical Systems IV. Extended Abstracts of the Fourth International Symposium on New Materials for Electrochemical Systems, 2001, p. 448-51 of xxiii+488 pp., 2 refs.
Editor(s): Savadogo, O.
Published by: Ecole Polytechnique de Montreal, Montreal, Que., Canada
Conference: Proceedings of Fourth International Symposium on New Materials for Electrochemical Systems, Montreal, Que., Canada, 9-13 July 2001
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Practical; Experimental
COUNTRY: Canada
LANGUAGE: English
ABSTRACT: Electrochemical **hydrogen storage** is envisaged as promising way of **storing hydrogen** in metal hydrides and other solid state storage materials. A photoelectrochemical (PEC) system combines the harvesting of solar energy with the electrolysis of water. There are many semiconductors with appropriate band gap for photoelectrochemical water splitting. In this study **porous silicon** was investigated to evaluate its possible application in a photoelectrochemical system for water splitting
CLASSIFICATION CODE: A8630K Photoelectrochemical conversion; A8640K Hydrogen storage and technology; A8245

Electrochemistry and electrophoresis; A8250 Photochemistry and radiation chemistry; B8410 Electrochemical conversion and storage

CONTROLLED TERM: electrolysis; elemental semiconductors; energy gap; hydrogen economy; photoelectrochemical cells; photoelectrochemistry; silicon; water

SUPPLEMENTARY TERM: Si photoelectrochemical cells; photoelectrochemical characterization; photoelectrolysis; hydrogen storage; metal hydrides; solid state storage materials; water electrolysis; cathode; anode; energy efficiency; semiconductor material; band gap; photoelectrochemical water splitting; 1.23 V; Si

CHEMICAL INDEXING: Si int, Si el

PHYSICAL PROPERTIES: voltage 1.23E+00 V

ELEMENT TERMS: Si

L34 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:142039 HCAPLUS

DOCUMENT NUMBER: 136:286931

ENTRY DATE: Entered STN: 22 Feb 2002

TITLE: Micro-nanosystems by bulk silicon micromachining

AUTHOR(S): Esashi, Masayoshi

CORPORATE SOURCE: New Industry Creation Hatchery Center (NICHe), Tohoku University, Aramaki, Aobaku, Sendai, 980-8579, Japan

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (**2001**), 4592(Device and Process Technologies for MEMS and Microelectronics II), 1-8
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

CLASSIFICATION: 76-0 (Electric Phenomena)

ABSTRACT:

A review. Wafer process packaging using elec. feedthrough from glass holes has been applied for micromech. sensors as electrostatically levitating micro motors (10,000 rpm) for rotational gyroscopes. Active catheters and sensors have been developed as maintenance tools used in narrow space. Silicon microstructures made by the deep RIE were used as molds for making ceramic microstructures. **Hydrogen** ***storage*** capacity of carbon nanotube was measured from the resonant frequency change of thin silicon cantilever which have the carbon nanotube on it. Multiprobe data storage devices have been fabricated using thermal probes of which tip size is 30 nm. The elec. feedthrough from the multiprobe was fabricated in a Pyrex glass plate by using Deep RIE (Reactive Ion Etching) and nickel electroplating. High d. data recording to a phase change media (GeSbTe) was performed.

SUPPL. TERM: review silicon micromachining microstructure nanostructure

INDEX TERM: Nanotubes
(carbon, **hydrogen storage** capacity; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Medical goods
(catheters; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Borosilicate glasses
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(elec. feedthrough **holes**; micro-nanosystems by bulk **silicon** micromachining)

INDEX TERM: Sputtering
(etching, reactive; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Cantilevers (components)
Gyroscopes
Micromachining
Microsensors
Molds (forms)
Nanostructures
Semiconductor memory devices
(micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Electric motors
Micromachines
(micromotors; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Ceramics
(microstructures; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: Etching
(sputter, reactive; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: 127860-51-9, Antimony germanium telluride
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(memory devices; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: 7440-21-3, Silicon, processes
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(micro-nanosystems by bulk silicon micromachining)

INDEX TERM: 7440-44-0, Carbon, processes
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(nanotubes, **hydrogen storage** capacity; micro-nanosystems by bulk silicon micromachining)

INDEX TERM: 1333-74-0, **Hydrogen**, processes
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**storage** capacity of carbon nanotubes; micro-nanosystems by bulk silicon micromachining)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Esashi, M; Microsystem Technologies 1994, V1, P2
(2) Fukatsu, K; Technical Digest of the 18th Sensor Symposium 2001, P285
(3) Haga, Y; Proc of MEMS 2000, P181 HCAPLUS
(4) Henmi, H; Sensors and Actuators 1994, VA43, P243
(5) Hirata, K; Technical Digest of the Transducers 2001, P962

(6) Katsumata, T; The Transaction of The IEE of Japan 2000, V120-E, P58
(7) Lee, D; Technical Digest MEMS 2001, P20
(8) Li, X; Technical Digest MEMS 2001, P98
(9) Liu, Y; Technical Digest MEMS 2001, P220
(10) Miyashita, H; J Vac Sci Technol 2000, VB18, P2692
(11) Nishio, M; Technical Digest of the 17th Sensor Symposium 2000, P55
(12) Ono, T; Technical Digest of the Transducers 2001, P1062
(13) Sugimoto, S; Proc of MEMS 2000, P775 HCAPLUS
(14) Takimura, N; Technical Digest of the 17th Sensor Symposium 2000, P423
(15) Tanaka, S; Technical Digest of the 17th Sensor Symposium 2000, P29
(16) Yang, J; Applied Physics Letters 2000, V77, P3860 HCAPLUS

L34 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 1999:563355 HCAPLUS
DOCUMENT NUMBER: 131:259853
ENTRY DATE: Entered STN: 06 Sep 1999
TITLE: Hydrogen diffusion in Si and Ni
AUTHOR(S): Sebastian, P. J.; Rivera, M. A.
CORPORATE SOURCE: Solar-H2-Fuel Cell Area, Morelos, 62580, Mex.
SOURCE: Journal of New Materials for Electrochemical Systems (**1999**), 2(3), 207-210
CODEN: JMESFQ; ISSN: 1480-2422
PUBLISHER: Journal of New Materials for Electrochemical Systems
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 72

ABSTRACT:
The electrochem. hydrogen absorption - desorption in p-**Si** and Ni **sponge** was studied by cyclic voltammetry. The voltammogram for Si in alkaline media in the potential range E -1.8 to -0.3 V (vs. SCE) showed an increase in the hydrogen evolution current at a potential of about -1.2 V, which indicates hydrogen evolution/absorption at this potential. The voltammogram for Ni in alkaline media in the potential range E = -1.3 to -0.2 V (vs. SCE) showed a cathodic peak at -1.13 which may be attributed to an absorption prewave due to water electroredn. to Hads.

SUPPL. TERM: electrochem hydrogen absorption desorption silicon nickel; battery anode silicon nickel **hydrogen storage**; cyclic voltammetry hydrogen absorption desorption
INDEX TERM: Absorption
Battery anodes
Diffusion
(hydrogen diffusion in Si and Ni)
INDEX TERM: 7440-02-0, Nickel, uses 7440-21-3, Silicon, uses
ROLE: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(hydrogen diffusion in Si and Ni)
INDEX TERM: 1333-74-0, Hydrogen, processes
ROLE: PEP (Physical, engineering or chemical process);

PROC (Process)
(hydrogen diffusion in Si and Ni)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Breiter, M; Z Elektrochem 1955, V59, P681 HCAPLUS
(2) Conway, B; J Electroanal Chem 1993, V357, P47 HCAPLUS
(3) Fukai, Y; The Metals-Hydrogen System 1993
(4) Hagi, H; Mater Trans 1990, V31, P954
(5) Hirth, H; Metallurgical Transactions 1980, V11 A, P861
(6) Huang, J; Int J Hydrogen Energy 1995, V20, P849 HCAPLUS
(7) Kirchheim, R; Progress in Materials Science 1988, V32, P262
(8) Lasia, A; J Electrochem Soc 1995, V142, P3393 HCAPLUS
(9) Song, M; Int J Hydrogen Energy 1995, V20, P221 HCAPLUS
(10) Subramanian, P; Comprehesive Treatise of Electrochemistry 1981, V4
(11) Vanhanen, J; Int J Hydrogen Energy 1996, V21, P213 HCAPLUS
(12) Volk, J; Hydrogen in Metals: Topics in Applied Physics 1978, V28, P29
(13) Will, F; Z Elektrochem 1960, V64, P258 HCAPLUS
(14) Yayama, H; Jpn J Appl Phys 1984, V23, P1619 HCAPLUS

L34 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:704177 HCAPLUS
DOCUMENT NUMBER: 129:333268
ENTRY DATE: Entered STN: 06 Nov 1998
TITLE: Electrochemical H2 diffusion in Si and Ni
AUTHOR(S): Rivera, M. A.; Sebastian, P. J.; Solorza, O.; Gamboa, S. A.; Rivera, R.; Olea, A.; Herman, A. M.
CORPORATE SOURCE: Solar-H2-Celdas de Combustible, CIE-UNAM, Morelos, Mex.
SOURCE: International Journal of Hydrogen Energy (**1998**), 23(11), 1019-1024
CODEN: IJHEDX; ISSN: 0360-3199
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ABSTRACT:
The electrochem. hydrogen absorption-desorption in p-**Si** and Ni ***sponge*** was studied by cyclic voltammetry. The voltammogram for Si in the alkaline media in the potential range E = ±1.8 to ±0.3 V (vs. SCE) showed an increase in the hydrogen evolution current at a potential of about ±1.2 V, which indicates hydrogen evolution/absorption at this potential. The voltammogram for Ni in the alkaline media in the potential range E = ±1.3 to ±0.2 V (vs SCE) showed a cathodic peak at ±1.13 V, which may be attributed to an absorption prewave due to water electroredn. to Habs.

SUPPL. TERM: battery secondary anode **hydrogen**

storage; electrochem hydrogen absorption desorption silicon nickel

INDEX TERM: Battery anodes
Electrodiffusion
(electrochem. hydrogen diffusion in silicon and nickel)

INDEX TERM: 7440-02-0, Nickel, uses 7440-21-3, Silicon, uses
ROLE: DEV (Device component use); USES (Uses)
(electrochem. hydrogen diffusion in silicon and nickel)

INDEX TERM: 1333-74-0, Hydrogen, processes
ROLE: PEP (Physical, engineering or chemical process); PROC (Process)
(electrochem. hydrogen diffusion in silicon and nickel)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Breiter, M; Z Elektrochem 1955, V59, P681 HCAPLUS
(2) Conway, B; Journal Electroanal Chem 1993, V357, P47 HCAPLUS
(3) Fukai, Y; The Metals-Hydrogen System 1993
(4) Hagi, H; Mater Trans 1990, V31, P954
(5) Hirth, H; Metallurgical Transactions 1980, V11A, P861
(6) Huang, J; International Journal of Hydrogen Energy 1995, V20, P849 HCAPLUS
(7) Kirchheim, R; Progress in Materials Science 1988, V32, P262
(8) Lasia, A; Journal Electrochem Soc 1995, V142, P3393 HCAPLUS
(9) Song, M; International Journal of Hydrogen Energy 1995, V20, P221 HCAPLUS
(10) Subramanian, P; Comprehensive Treatise of Electrochemistry, Chap 8 1981, V4
(11) Vanhanen, J; International Journal of Hydrogen Energy 1996, V21, P213 HCAPLUS
(12) Volk, J; Hydrogen in Metals:Topics in Applied Physics 1978, V28, P29
(13) Will, F; Z Elektrochem 1960, V64, P258 HCAPLUS

L34 ANSWER 7 OF 9 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 1998:5967224 INSPEC
DOCUMENT NUMBER: A1998-16-7855-027
TITLE: Influence of successive electron and laser irradiation on the photoluminescence of **porous silicon**
AUTHOR: Kostishko, B.M.; Orlov, A.M. (Ulyanovsk State Univ., Russia)
SOURCE: Technical Physics (March 1998), vol.43, no.3, p. 318-22, 20 refs.
CODEN: TEPHEX, ISSN: 1063-7842
SICI: 1063-7842(199803)43:3L.318:ISEL;1-X
Price: 1063-7842/98/030318-5$15.00
Doc.No.: S1063-7842(98)00903-9
Translation of: Zhurnal Tekhnicheskoi Fiziki (March 1998), vol.68, no.3, p. 58-63
CODEN: ZTEFA3, ISSN: 0044-4642
SICI: 0044-4642(199803)68:3L.58;1-3
Published by: AIP, USA
DOCUMENT TYPE: Journal; Translation Abstracted

TREATMENT CODE: Experimental
COUNTRY: United States; Russian Federation
LANGUAGE: English
ABSTRACT: The influence of electron irradiation on the light-emitting properties of p- and n-type **porous silicon** prepared by electrochemical etching is investigated. The dose and energy dependences of the electron-stimulated quenching of the photoluminescence (PL) are determined. It is shown that electron treatment of a **porous silicon surface** followed by prolonged storage in air can be used to stabilize the PL. The excitation of photoluminescence by a UV laser acting on sections of **porous silicon** samples subjected to preliminary electron treatment is discovered for the first time. The influence of the electron energy and the power of the laser beam on this process is investigated. The results presented are attributed to variation in the number of radiative recombination centers as a result of the dissociation and **restoration** of **hydrogen**-containing groups on the pore **surface**
CLASSIFICATION CODE: A7855H Photoluminescence in other inorganic materials; A6180F Electron and positron effects; A6180B Ultraviolet, visible and infrared radiation effects
CONTROLLED TERM: electron beam effects; elemental semiconductors; ion recombination; laser beam effects; photoluminescence; porous materials; radiation quenching; silicon
SUPPLEMENTARY TERM: electron irradiation; laser irradiation; photoluminescence excitation; porous Si; restoration; light-emitting properties; electrochemical etching; dose dependence; energy dependence; electron-stimulated quenching; electron treatment; pore surface; UV laser beam; H-containing groups; radiative recombination centers; dissociation; n-Si; p-Si; Si
CHEMICAL INDEXING: Si el

L34 ANSWER 8 OF 9 PASCAL COPYRIGHT 2007 INIST-CNRS. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 1998-0186810 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 American Institute of Physics. All rights reserved.
TITLE (IN ENGLISH): Influence of successive electron and laser irradiation on the photoluminescence of **porous silicon**
AUTHOR: KOSTISHKO B. M.; ORLOV A. M.
CORPORATE SOURCE: Ulyanovsk State University, 432700 Ulyanovsk, Russia
SOURCE: Technical physics, (1998-03), 43(3), 318-322 ISSN: 1063-7842 CODEN: TEPHEX
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States

LANGUAGE: English
AVAILABILITY: INIST-1186
ABSTRACT: The influence of electron irradiation on the light-emitting properties of p- and n-type **porous silicon** prepared by electrochemical etching is investigated. The dose and energy dependences of the electron-stimulated quenching of the photoluminescence (PL) are determined. It is shown that electron treatment of a **porous silicon** surface followed by prolonged storage in air can be used to stabilize the PL. The excitation of photoluminescence by a UV laser acting on sections of **porous silicon** samples subjected to preliminary electron treatment is discovered for the first time. The influence of the electron energy and the power of the laser beam on this process is investigated. The results presented are attributed to variation in the number of radiative recombination centers as a result of the dissociation and **restoration** of **hydrogen**-containing groups on the pore surface. .COPYRGT. 1998 American Institute of Physics.
CLASSIFICATION CODE: 001B70H55A; Physics; Condensed matter physics, Materials science; Optical properties
001B60A80F; Physics; Condensed matter physics, Materials science; Crystallography
001B60A80B; Physics; Condensed matter physics, Materials science; Crystallography
001B60A82F; Physics; Condensed matter physics, Materials science; Crystallography
PHYS. AND ASTRONOM.CODE: 7855A; 6180F; 6180B; 6182F
CONTROLLED TERM: Experimental study; Silicon; Elemental semiconductors; Porous materials; Photoluminescence; Electron beam effects; Laser beam effects; Radiation quenching; Ion recombination

L34 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 1994:16452 HCAPLUS
DOCUMENT NUMBER: 120:16452
ENTRY DATE: Entered STN: 08 Jan 1994
TITLE: Effect of laser illumination on oxidation of **porous silicon**
AUTHOR(S): Zhang, L. Z.; Mao, J. C.; Zhang, B. R.; Zhu, W. X.; He, Y. L.; Song, H. Z.; Duan, J. Q.; Qin, G. G.
CORPORATE SOURCE: Dep. Phys., Peking Univ., Beijing, 100871, Peop. Rep. China
SOURCE: Materials Research Society Symposium Proceedings (**1993**), 283(Microcrystalline Semiconductors: Materials Science & Devices), 287-92
CODEN: MRSPDH; ISSN: 0272-9172
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 67-3 (Catalysis, Reaction Kinetics, and

Inorganic Reaction Mechanisms)
Section cross-reference(s): 73, 78

ABSTRACT:
The authors studied the effect of laser illumination (argon laser line of 488 nm) on the oxidization process of the inner **surfaces** of ***porous*** **silicon** (PS) by measuring the photoluminescence (PL), Fourier-transform IR (FTIR) absorption and x-ray photoelectron spectra and contrasted the variations of PL and FTIR spectra of the PS treated in the following four ways: (1) in vacuum with laser illumination (LI) with power d. of 12 mW/mm2; (2) in oxygen with LI; (3) in oxygen without LI (the times for all the above three treatments were 1 **h**); and (4) **storage** in air for 2 mo without LI. The PL peak of PS showed serious degradation and a blue shift in case 2 but only a moderate degradation and no shift in case 1. The results of FTIR absorption show that the LI in an atmospheric of oxygen enhanced greatly the increase of oxygen-related absorption bands and the decrease of various silicon-hydrogen vibrational mode absorption bands.

SUPPL. TERM: laser illumination oxidn **porous** **silicon**

INDEX TERM: Oxidation
(of **porous** **silicon**, laser illumination effect on)

INDEX TERM: 7440-21-3, **Silicon**, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of **porous**, laser illumination effect on)

=>